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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,862

09/22/2003

Christof Mehler

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NOVAK DRUCE DELUCA & QUIGG, LLP  
1300 EYE STREET NW  
SUITE 1000 WEST TOWER  
WASHINGTON, DC 20005

EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

07/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/664,862	<b>Applicant(s)</b> MEHLER ET AL.	
	<b>Examiner</b> Jonathan S. Crepeau	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. This Office action addresses claims 1-9. The indicated allowability of claims 1-9 is withdrawn in view of the newly discovered reference(s) to Thielen et al (U.S. Patent 6,331,586) Saito et al (EP 1011164). Rejections based on the newly cited reference(s) follow.

### *Priority*

2. Applicant's remarks regarding the priority of the instant application are persuasive and the priority claim to DE 10243592.8 under 35 USC 119(a)-(d) is granted.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1011164 in view of Thielen et al.

EP '164 is directed to a PEM fuel cell comprising a separator plate comprising a polymer binder, a powdery carbon filler, and a short fiber (see abstract). The polymer may comprise a

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variety of materials including polyamide, polyethersulfone, or polyether ketone (see [0018]).

The short fiber may comprise carbon fiber and carbon filler may comprise carbon black.

EP '164 does not expressly teach that the binder comprises a polymer blend which includes at least two mutually nonmiscible blend polymers in a co-continuous or intercalated structure, as recited in claim 1.

Thielen et al. is directed to conductive polymer blend having a co-continuous structure (see abstract). The conductive material (e.g., including carbon black and carbon fiber) is substantially localized in one of the polymers (see col. 4, line 15). The blend polymers may comprise a variety of polymers including polyamides and polyethers (col. 6, line 21).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the co-continuous polymer blend of Thielen et al. in the separator plate of EP '164. In column 3, line 24, Thielen et al. state that an object of the invention is "to provide a conductive polymer blend which is suitable for processing by any method, including blow molding," and further state that the polymer blends have "improved mechanical properties." In column 11, line 30, it is taught that "[a] wide variety of articles may be produced from the polymer blends of the invention" including "components for electronic equipment." Accordingly, the skilled artisan would be sufficiently motivated to incorporate the polymer blend of Thielen et al. into the separator plate of EP '164.

Regarding the composition of the plate recited in instant claim 6, it would be obvious to use at least one polyamide and at least one polyether ketone or polyether sulfone as the blend polymers of Thielen et al. As noted above, EP '164 expressly discloses each of these materials,

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and Thielen et al. teach polyamides as well as polyethers in general. Further, Thielen et al. teach at column 6, line 45, “[i]n general, any pair of polymers may be selected for a blend provided that the two polymers present at least some degree of immiscibility and preferably differ in their polarity.” Accordingly, the artisan would be sufficiently skilled to use the claimed polymers in the blend of EP ‘164.

Regarding the weight ratios recited in claims 3, 4, and 7, it would be well within the skill of the art to vary the specific amounts of carbon black, carbon fiber, and blend polymer(s) to affect the characteristics of the separator plate. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). In this case, the artisan would be able to optimize the conductivity of the plate in light of its mechanical integrity. Thus, it would be obvious to manipulate the amounts of fillers and polymers to amounts encompassed by the claimed ranges.

### ***Conclusion***

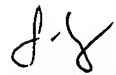
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jonathan Crepeau  
Primary Examiner  
Art Unit 1745  
June 27, 2007